Noise Control Solutions for Power Generation and Oil & Gas
**Oil & Gas Applications**

In addition to the power generation sector, IAC Acoustics also provides both standard noise control products and turnkey solutions for oil & gas projects. Turnkey projects include solutions for:

- Gas and crude oil extraction
- Off-shore production platforms
- On-shore pipelines
- Oil refineries
- Gas gathering, petrochemical plants
- Oil & gas treatment plants
- Oil & gas storage plants
- LNG storage and regasification
- Processing plants
- Cryogenic lines

**Power Generation Solutions**

IAC Acoustics provides both turnkey solutions and discrete noise control products for power generation projects. Turnkey projects include solutions for various applications such as cogeneration plants, combined-cycle plants and critical back-up installations.

Apart from turnkey packages, IAC Acoustics can also provide individual noise control systems for the following equipment:

- Diesel engines
- Gas engines
- Industrial gas turbines
- Heavy duty gas turbines
- Steam turbines
- Generators
- Boilers and HRSG
- Hot and cold chimneys
- Fly-ash stacks
### IAC ACOUSTICS PRODUCTS & SOLUTIONS

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**Use this table to choose the type of solution / product suitable for your application.**
IAC Acoustics can provide diesel and gas gen-sets with the following types of noise and emission control:

**Intake & Exhaust systems**
- Large range of exhaust silencers (15, 25, 30, 40 and 50 dBA noise-reduction available from stock)
- Specific ranges for CHP and container applications
- Circular, rectangular or hockey-puck designs
- Radial, swirl and combined inlets (from or triplex intakes)
- Standalone and integrated catalytic
- Standalone and integrated spark-arrestors
- Heat-recovery silencers
- Intake ducting and attenuators
- Any type of accessory to manage the full exhaust line, including: bellows, piping, flanges, gaskets, and thimbles
- All types of materials

**ISO containers and Enclosures**
- Noise reduction (up to 50 dBA)
- Vibration isolated and shock resistant systems
- Soundproofed ventilation for cooling engine mechanics
- Soundproofed exhaust systems
- Any type of accessory to manage the full exhaust line, including: bellows, piping, flanges, gaskets, and thimbles
- All types of materials

IAC Acoustics has the ability to design any customised or bespoke solution to meet specific requirements.

Sections A-C relate to equipment / Section 1-7 relate to products & solutions made by IAC Acoustics

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Gas Turbines, Steam Turbines, Generators and Auxiliaries

IAC Acoustics provides complete turbine packaging including:
- Gas Turbine enclosures
- Auxiliary enclosures
- Complete inlet system including filtration
- Complete exhaust line, including primary and/or bypass silencers and HRSG silencers

These can be any type such as aero-derivative, industrial or heavy-duty gas turbines.

A dedicated design team develops the most cost effective and reliable solution for each project, whether for one element from the above or a complete package.

Main and associated functions:
- Noise reduction
- Filtered, cooled or heated turbine intake
- Turbine cooling / enclosure ventilation
- Full exhaust system
- Safety systems
- Active parts protection
- Heavy-duty maintenance
- Easy access for operators
- Pipe-work, cables and fire network integration
- Interface with machine
- Resistance to environmental conditions (wind, explosions etc.)

IAC Acoustics excels in:
- Filtration, ventilation, aerodynamics, noise reduction, mechanical and life guarantees
- Low pressure loss, cooling/anti-icing of induced air for turbine efficiency
- Large range of insertion loss (up to 50 dB)
- Low pressure drop exhaust systems
- Material and thermal insulation at high temperatures (550°C/1000°F)
- On-base and off-base design enclosures
- Interfacing
- Turnkey solutions
- Logistics (especially integration in OEM supply chain)
- Project management
Boilers and HRSG
Heat Recovery Steam Generators (HRSG) and large industrial boilers are among the highest sources of noise pollution in power generation, oil & gas and industrial sectors. IAC Acoustics designs and manufactures complete noise control solutions for installations, based on more than 60 years’ experience with equipment in operation all over the world.

Vent Silencers
All vent silencers from IAC Acoustics are custom-designed to suit individual projects, depending on the equipment, fluid and operating conditions. Designed and manufactured according to ASME B31.3, ASME VIII div. 1 and PED 2014/68EU to achieve up to 65dBA noise reduction without additional acoustic treatment. Specialized packing and material can be used for extreme operating conditions.

Vent silencers are designed to meet requirements for any use such as:
- Safety valves
- Relief & start-up valves
- Blow down tanks

Stack & Flue Gas Silencers
Stack silencers are designed to reduce the noise produced by the exhaust gas at the top of stacks. They are typically installed downstream of equipment such as engines, turbines, boilers, HRSG and FGD systems.

Typical applications include:
- Simple or combined cycle power plants
- Coal fired power plants
- Industrial or petrochemical boilers
- FGD systems
- Cogeneration plants

IAC Acoustics provides a custom made solution for boiler and HRSG flue gas treatments including:
- Acoustic splitter panels in stacks
- Acoustic splitter panels in outlet casings

Enclosures and Acoustic Shrouds
IAC Acoustics provides various solutions to reduce noise radiation from boilers and HRSG. These also include access and ventilation systems.
Compressors, Pumps and Valves

IAC Acoustics provides a complete solution, with a range of products for inlet and outlet of vacuum pumps and compressors where operating pressure inside the silencer is below 0.5 barg (7.5 psig). If the operating pressure inside the silencer exceeds 0.5 barg (7.5 psig), IAC Acoustics has specific designs to meet regulations such as PED or ASME.

Compressors can be any type: centrifugal, axial, rotary screw, rotary vane, rotary lobe, reciprocating or positive displacement blower.

These product lines offer:
- Adaptability for new or existing facilities
- A standard range that can be customized easily to meet individual needs
- Short lead times thanks to in-house lean manufacturing techniques
- A longstanding history of acoustic, thermal and hydraulic expertise
- Guaranteed performance

When operating pressure remains very high in a compression network, IAC Acoustics can supply in-line silencers to reduce noise radiation from flow.

All IAC Acoustics compressor silencers are fully welded using all-steel construction (carbon as standard material, other grades such as stainless steel available upon request).

Fresh Air & Recirculating Fans

Large fans are found in most power-generation sites, mines and oil & gas applications, from boilers to flue gas desulphurisation system ventilation. Special silencers are required due to space constraints, dirty flue gases, tonal criteria etc. Also, huge noise reductions are required in low frequency noise created by boiler burners.

IAC Acoustics is a worldwide specialist in this sector and has the capability to produce a large range of air intake silencers for both circular and rectangular shaped suction and discharge applications.

Typical applications include:
- Induced and forced draft fans
- FGD systems
- Mine ventilation
- Scrubbers and cooling towers

Forced Draft (FD) and Induced Draft (ID) fan silencers

- Fan silencers are designed for minimum pressure drop but with strong construction to meet environmental requirements
- Scope is either splitter panels or a complete silencer supplied with casing
- Construction materials are based on customer requirements.
Filtration

In addition to providing world-class acoustic solutions to the power generation and oil & gas industries, IAC Acoustics offers also filtration as part of a complete package. These filtration designs are based on a wide range of technical options including pulse and both static and self-cleaning oil bath filters.

Hurricane Pulse Filters

A self-cleaning air intake system to meet filtration requirements of gas turbines, diesel engines, electrical rotating machines and compressors. Constructed using heavy-duty steel, the modular “Hurricane” housing unit can be adapted to suit any airflow process for either combustion or ventilation purposes.

AutoFlo 2000

The AutoFlo 2000 is a self-cleaning, steel housing unit consisting of a rotating chain-type assembly and adhesive oil tank. Inside, woven mesh panel filters circulate in and out of oil where they are cleaned by agitation.

LP Oil Bath Filter

The LP Oil Bath uses a centrifugal process to clean intake air for engines, compressors and blowers. It functions with extremely low pressure loss and requires no external power for operation.

Air Intake Noise Control

IAC Acoustics designs and manufactures a number of different solutions to minimize noise at the air intake on all sizes of gas turbine generators. Typically splitter configurations are designed to fit into filter houses and optimized for low pressure-drop, improving turbine performance.

Integrated Air Intake System

In addition to standard products, IAC Acoustics also provides full air-intake systems with filtration, anti-fogging and anti-icing systems. Where complex configurations reduce available space for silencers, IAC Acoustics also has a range of small-footprint solutions to meet required criteria in a reduced space.
Splitter Silencers for Cold Stack and Flue Gas Silencers

Splitter silencers can be located in cold stacks, boiler outlet ducts or flue gas ducts downstream of an exhaust fan. Splitter silencers are made of parallel baffles inserted into a duct (rectangular or cylindrical) or in a separate casing with connecting flanges for easy installation. Configurations include:

- Design with parallel splitters
- Complete silencers with separate casing, stack or duct inserts and loose baffles
- Up to 250°C/500°F operating temperature
- Designed for either rectangular and cylindrical stack arrangements
- Supporting brackets for hot or cold casings (welded or bolted construction)

IAC Acoustics provides a custom made solution for boiler and HRSG flue gas treatments including acoustic splitter panels in stacks and acoustic splitter panels in exhaust outlets

Exhaust Systems

IAC Acoustics designs and manufactures standard and customized exhaust silencers, for both vertical and horizontal configurations. In addition to standard hot-gas silencers, IAC Acoustics also provides solutions for flue gas or bypass stacks. Exhausts can be made with or without a separate casing and all types are built to a high standard and rigorously tested for optimum acoustic performance.

Engine Exhaust Silencers

- Gas or diesel engines
- Standard range for engines from 10kW up to 8.000kW
- Up to 65 dBA noise attenuation
- Gas temperature from 120°C up to 550°C (250°F to 1000°F)
- Optional equipment include catalysts and spark arrestors
- Absorptive, reactive and combined options available to suit application

Heat-Recovery Silencers

- Recover heat from exhaust gas
- Separated or combined with silencing and spark-arrestors

Gas Turbine By-Pass Silencers

Gas turbine by-pass silencers from IAC Acoustics can be designed and manufactured as a single unit, cylindrical cartridge or parallel splitter panels to go in a casing. With the ability to cope with high temperatures, IAC Acoustics silencers can either be placed in-stack or in a separate casing to suit the required pressure drop of individual projects. Manufactured using a rugged all-steel construction, we can use specialist materials for high temperatures and other project specific requirements.

- Sound pressure level as low as 75 dBA at 1m from the stack outlet
- Acoustic efficiency up to 50 dBA noise reduction
- Flow rate up to 2200 t/h
- Gas temperature up to 650°C/1200°F

Emission Control

- Lean rich burn engines
- Spark ignited (natural gas or dual-fuel) or compression ignited (diesel or bio-fuel)
- 3-way, gas oxidation and diesel oxidation catalysts available
- Diesel Particulate Filters (DPF)
- Up to 99% regulated pollutant reductions
- Selective Catalytic Reduction (SCR)
- Spark arrestors (optional ATEX certification)

Heat-recovery Silencers

Recover heat from exhaust gas
Separated or combined with silencing and spark-arrestors

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Acoustic Enclosures

Based on its modular construction panels, IAC Acoustics is able to provide cost-effective solutions to house any noisy machine such as gas turbines, reciprocating engines, generators and compressors.

With both factory and site construction options available, complete acoustic buildings can be made either as standalone enclosures or rooms housing multiple sets.

IAC Acoustics can also integrate other functions as part of a package such as ventilation, access with high-spec acoustic doors, control with high-spec acoustic windows, fire-detection, fire-suppression and lighting.

Product Range

- Modular acoustic enclosures for noisy plant and machinery
- Soundproof rooms for product testing
- Factory offices and control rooms
- Partial acoustic enclosures with sliding covers for quick access
- Acoustic barriers and screens
- Sound absorptive wall linings and ceiling baffles
- Acoustic doors and windows
- Silencers and acoustic linings for ventilation and mechanical plant equipment

For over 60 years, IAC Acoustics has successfully created complete acoustic structures and walls using a proven and cost effective method.

The flexibility of the IAC Acoustics Moduline™ panel system means that the following types of noise control solutions can be configured:

- Straight walls / barriers
- Partial enclosures / shields
- Access control, including doors, windows and hatches
- Complete enclosures including acoustic roofs and isolated / floating floors
- Silent ventilation packages for all types of enclosure from personnel shelters to power generation plant rooms
Vent Silencers

Vent silencers are typically used on safety valves, control valves, snort valves and ejectors. All vent silencers from IAC Acoustics are custom-designed to suit individual projects, depending on the equipment, fluid and operating conditions.

Designed and manufactured according to ASME B31.3, ASME VIII div. 1 and PED 2014/68EU, up to 65dBA noise reduction can be achieved without the need for additional acoustic treatment. Specialised packing and material can be used for extreme operating conditions such as desert, tropical or icy environments.

Vent silencers are designed to meet requirements for any use such as:

- Safety valves
- Relief & Start-up valves
- Blow down tanks

Vent silencer reliability is a matter of safety due to the pressure encountered in most applications. This means that products need to be manufactured to meet specific regulations and standards, combining high pressure piping to release gas pressure and absorbing technologies to reduce huge noise generated by the release valve.

IAC Acoustics is an approved supplier for all industries and applications available including the most demanding ones such as nuclear, oil & gas, LNG trains and super critical boilers.

In addition to manufacturing vent silencers, IAC Acoustics also offers a range of additional products and accessories including flanges, rain-hoods, mobile inlet pipes, multiple inlet arrangements, bird screens, supporting brackets, external lagging or any other device that will help customers.
Acoustic Louvres
IAC Acoustics is a leading global manufacturer of rugged, high performance acoustic louvres and has completed thousands of installations worldwide. Applications include:

• Fresh air intake for ventilation systems
• Mechanical equipment screens and penthouses
• Noise barriers
• Process air intakes
• Cooling tower intakes / exhausts and screens

IAC Acoustics can provide louvre solutions to reduce environmental noise problems, carrying out all relevant noise surveys and acoustic analysis. IAC Acoustics’ curved (Noishield™) or linear (Slimshield™) blade louvre styles can be used to match the overall scale and aesthetics of a new building. Both IAC Acoustics Noishield™ and Slimshield™ louvres are available in an array of standard modular sizes, meaning that a wide range of performance requirements can be met. By using this range of acoustic louvres, it overcomes architectural consistency issues, especially where space is limited.

Duct Silencers
All IAC Acoustics silencers have been developed to meet specific requirements from acoustic consultants, consulting engineers, contractors and operators. They provide the most economical choice for solving a wide diversity of noise control problems encountered in HVAC engineering.

Quiet-Duct® Rectangular Silencers
Available for conventional applications including low frequency, IAC silencers have acoustic performances which have been specifically engineered for low frequencies in the 63 Hz, 125 Hz, and 250 Hz octave bands.

Conic-Flow® Tubular Silencers
Similarly to Quiet-Duct®, our Conic-Flow® range has been specifically engineered for low frequencies in 63 Hz, 125 Hz, and 250 Hz octave bands.

D-Duct Acoustic Diffuser Silencers
These are available for axial fan systems. The combined inner diffuser cone and outer square jacket casing makes these units aerodynamic noise devices as well as silencers.
IAC Acoustics offers a wide range of accessories to build exhaust systems ("ACM"/"ACI" product line) and reduce vibrations for all applications ("AVM" product line). From standalone items to fully integrated systems, the IAC Acoustics range of accessories will fit almost any need in the marketplace. Although standard sizes are available for many accessories, specific solutions can be engineered to customer specifications.

Our channel partners and product specialists stand ready to assist you in selecting the right accessories to meet your needs. Most of our standard accessories come with a high heat resistance black paint finish, however other materials can be used to meet individual requirements.

**Sub-Assemblies**
- Flexible connectors
- Bellow
- Y connectors
- Expansion bellows
- Safety covers
- Thimbles
- Roof jacks
- Rain caps
- Elbows
- Outlet extensions

**Standalone Items**
- Pipe hangers
- Brackets
- Clamps
- Flanges
- Gasket kits
- Couplers, reducers/expander
- Anti-vibration mounts, including spring, captive rubber mounts and ceiling hangers
Acoustic Buildings and Enclosure Packages

Acoustic packages for oil & gas applications are designed to minimise on-site installation, reduce maintenance costs and provide high accessibility at all times. Packages include, design studies, acoustic panels, supporting structures, ventilation and exhaust systems.

- Noise reduction ratings from 15 to 50 dBA
- Indoor or outdoor arrangements
- Modular solutions
- Easy access for operators
- Integration of lighting, ventilation, fire detection and/or fire-fighting systems, instruments, pipes, air conditioning and fittings
- Package with air inlet and outlet for ventilation
- Exhaust integration
- Acoustic doors and windows

Complete Noise Control Packages

For EPCs, OEMs and packagers, IAC Acoustics also provides complete filtration and acoustic solutions. By choosing a complete package, IAC Acoustics guarantees the overall noise reduction whilst optimising the efficiency of the equipment. IAC Acoustics works closely with packagers and OEMs to get high performance of individual installations whether they are located in ambient or harsh environmental conditions.

Complete Project Management

In addition to providing physical solutions for noise control, IAC Acoustics can also manage complete projects from initial site survey and technical specification to manufacture, installation, site assistance and final site commissioning.

Gen-Set Packages

Gen-set packages include acoustic treatment of the whole equipment to meet overall performance and noise guarantees. It includes all areas including combustion air, mechanical noise with enclosures, ventilation for cooling engine mechanics and exhaust systems.

Gas Turbine Packages

Gas turbine packages are the combination of standardised design with a variety of modular add-ons to meet specific customer requirements and provide the ideal solution for successful projects. These packages include gas turbine, gearbox, generator (in case of power-generators), compressor (in case of oil & gas applications) and all systems mounted on or off skids.

Gen-set packages include, enclosures, supporting structures, complete inlet systems including filtration, complete exhaust lines, including primary silencer and/or by-pass silencers. IAC Acoustics has the capability to work on both new projects and retrofit works.

Compressor Packages

Compressor packages are designed for a wide range of oil & gas engineering purposes to ensure maximum reliability and efficiency, operational safety, trouble-free operation and easy maintenance.

Compressor packages ease transport and reduce site installation work to a minimum.
In an era of excessive noise, we are, as we always have been, committed to making the world a quieter place.